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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,346

04/28/2006

Koichi Kusakawa

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EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,346	<b>Applicant(s)</b> KUSAKAWA ET AL.	
	<b>Examiner</b> Irina S. Zemel	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

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| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)            |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application  |
| Paper No(s)/Mail Date <u>10/24/07; 6/16/06</u> .                                       | 6) <input checked="" type="checkbox"/> Other: <u>IDS 4/28/06</u> . |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipate by US patent 6,548,600 to Walton, (hereinafter “Walton”).

Walton discloses compositions obtained by dynamically heat-treating a mixture in the presence of organic peroxide, said mixture comprising: peroxide-crosslinking type olefin polymer rubber (a), such as EPDM (column 4, line 43) and a peroxide-decomposition type olefin plastic (b), such as polypropylene homopolymer or copolymer (column 6, lines 22-38). The compositions are obtained by actively kneading in an extruder components (a) and (b) with organic peroxide. The resulting compositions are virtually gel free. The limitation of “for foam” is a preamble limitation of intended use of the composition. This limitation is given weight only to the extent that the composition disclosed in the reference is capable of being used for such applications. The disclosed composition is inherently capable for the claimed use because the claimed composition is believed to be substantially identical to the composition disclosed in the reference. Therefore, the preamble limitation is anticipated by the reference. The burden is shifted to the applicant to provide convincing factual evidence to the contrary.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Walton.

The disclosure of Walton is discussed above. The reference does not expressly address the properties of the resulting compositions, such as a volume ratio of a component which exhibits a mobility of 400 microseconds or more at a T2 (spin-spin relaxation) time by proton ( $H^+$ ) pulse nuclear magnetic resonance is 55 to 95% and a volume ratio of a component which exhibits the mobility of less than 400 microseconds at the T2 time is 5 to 45% in the branched rubbery olefin based soft resin (C).

However, given the respective amounts of the (a) and (b) components, disclosed amounts of peroxides and crosslinking aid, and the processing conditions, and the final gel-fraction of the compositions being very low, it is reasonably believed that the compositions disclosed by Walton will inherently exhibit the claimed properties. The burden is shifted to the applicants to provide factual evidence to the contrary.

***Claim Rejections - 35 USC § 103***

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,786,403 to Okada et al., (hereinafter "Okada") as evident by US Re 31, 518 to Fischer (hereinafter "Fischer") or US Patent 4,301,169 to Morris, (hereinafter "Morris"), or in the alternative in view of US Patent 4,212,787 to Matsuda et al., (hereinafter "Matsuda").

Okada discloses compositions obtained by dynamically heat-treating a mixture in the presence of organic peroxide, said mixture comprising: 60 to 95 parts by weight of a peroxide-crosslinking type olefin polymer rubber (a) and 5 to 40 parts by weight of a peroxide-decomposition type olefin plastic (b). The (a) components is disclosed as an ethylene/.alpha.-olefin copolymer rubber , and the (b) component is disclosed as an alpha-olefin homopolymer or copolymer. The compositions further contains a foaming agent. See column 2, lines 13-32. In illustrative examples compositions containing 75 % of EPDM and 25 % of PP are reactively kneaded in an extruder with organic peroxide, blended with a foaming agent and foamed. See, for example illustrative embodiment 1 and all illustrative examples.

While the illustrative examples disclose compositions with gel fraction of about 30 %, the reference further expressly discloses that the gel fraction of the compositions can be as low as 10%. See column 8, lines 15-20. It is noted that the measurement of gel fraction as disclosed in the Okada reference are done in cyclohexane at room temperatures, as opposed to the claimed measurements in boiling xylenes. It is well known in the art that the gel fraction measured in cyclohexane at room temperature is

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significantly higher than the gel fraction of the same very crosslinked polyolefin based composition as measured in boiling xylenes. See, for example, disclosure of Fischer, column 4, line 35 et seq., expressly stating that gel fraction measured in boiling xylene will be at least 30-50 % lower than gel fraction measured in cyclohexane for the same composition. Thus, the disclosed gel fraction of Okada, which can be as low as 10 (measured in cyclohexane), corresponds to the gel fraction of about 5-7, as measured in boiling xylene, therefore, either overlapping with or very close to the claimed gel fraction. Thus, the claimed range would have been obvious with reasonable expectations of substantially similar results.

In addition, as evident from Morris, gel fraction measure in boiling xylene is substantially higher for polyolefin resins than the gel fraction as measured in cyclohexane at room temperature. For example, the reference discloses EPDM as having 0 gel fraction in xylene and not higher than 18 % in cyclohexane, and illustrates such EPDM rubbers in Table 1 (having 15 % gel fraction as measured in cyclohexane and ) as measured in xylene). Therefore, it is reasonably believed that the disclosed range of gel fraction in Okada inherently overlaps with the claimed range, and, thus would have been obvious with reasonable expectation of adequate results.

In the alternative (assuming that the reference discloses higher gel fractions than claimed), it is well known in the art that lower crosslinking or gel fraction results in reduction in heat resistance, tensile properties, etc., which lower heat resistance and lower elasticity and other variations in properties are desirable for different applications of foams. See, for example, discussion of Matsuda, column 7, lines 43-54. Therefore,

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lowering the gel content or degree of crosslinking would have been obvious to obtain the final foams with desirable known characteristics.

The Okada reference does not specifically disclose whether the disclosed compositions exhibit the claimed properties, i.e., a volume ratio of a component which exhibits a mobility of 400 microseconds or more at a T2 (spin-spin relaxation) time by proton ( $H^+$ ) pulse nuclear magnetic resonance is 55 to 95% and a volume ratio of a component which exhibits the mobility of less than 400 microseconds at the T2 time is 5 to 45% in the branched rubbery olefin based soft resin (C), however, given the respective amounts of the (a) and (b) components of Okada, disclosed amounts of peroxides and crosslinking aid, and the processing conditions, which are substantially similar as disclosed in Okada and in the instant specification, it is reasonably believed the Okada disclosed compositions (which can have as little as 0.05 % by weight of peroxide (col. 6, line 66) and as little as 0.1% of crosslinking aid (col. , line 33)), with gel content (as measured in cyclohexane ) of 10 will inherently exhibit the claimed properties, or would have been inherent in compositions as modified by teachings of Matsuda. The burden is shifted to the applicants to provide factual evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/  
Primary Examiner, Art Unit 1796

Irina S. Zemel  
Primary Examiner  
Art Unit 1796

ISZ